

# **Multistate Investigation of Multidrug-Resistant *Salmonella* Serotype Newport Infections in the Northeastern United States, 2000: Human Infections Associated with Dairy Farms**

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**Background:** Multidrug-resistant (MDR) *Salmonella*, including resistance to clinically important agents such as ceftriaxone, is a growing concern in the United States. We describe a multistate investigation of MDR *S. Newport* infections conducted in 2001.

**Methods:** Since July 1998, all *S. Newport* isolates received at the MA Public Health Laboratory were tested for resistance to 17 antimicrobial agents by Sensititre and subtyped by pulsed-field gel electrophoresis (PFGE). An isolate was MDR if it was resistant to at least amoxicillin/clavulanic acid, ampicillin, ceftiofur, cephalothin, chloramphenicol, streptomycin, sulfamethoxazole and tetracycline. We conducted telephone interviews with 36 patients with MDR *S. Newport*, 37 patients with susceptible *S. Newport* and 94 randomly-selected community controls using a standard questionnaire. We also visited farms associated with *Salmonella* infections in humans and cattle.

**Results:** Of 117 human *S. Newport* isolates tested in MA, 48 (41%) were MDR; 0% in 1998, 24% in 1999, and 54% in 2000. All 11 cattle *S. Newport* isolates tested were MDR. Furthermore, 36 (75%) human and 10 (91%) cattle MDR isolates were resistant to ceftriaxone. Although MDR isolates consisted of 10 PFGE patterns, one pattern accounted for 50% of isolates and MDR PFGE patterns were distinct from the 53 PFGE patterns of susceptible *S. Newport*. The median age of MDR cases was 23 years and 63% were female. Compared with susceptible *S. Newport* cases, MDR cases were more likely to report bloody diarrhea (OR=4.8, 95% CI 1.4-17.7) and 6/34 reported exposure to dairy farms (OR=7.7, 95% CI 0.82-183). None of the MDR cases traveled outside of the US. Six of 26 cattle stool specimens collected from 2 farms in MA and VT during a March, 2001 field investigation contained MDR *S. Newport* which were also resistant to ceftriaxone.

**Conclusion:** MDR *S. Newport* has emerged in the northeastern United States. Transmission may include both a direct route via contact with dairy farms and an indirect route still undetermined.

## **Suggested citation:**

Gupta A, Crowe C, Bolstorff B, Fontana J, Stout A, Montgomery S, McGuill M, Matyas, Johnson B, Schoenfeld S, and Angulo F, Centers for Disease Control and Prevention, Atlanta, GA, Massachusetts Department of Public Health and Vermont Department of Health. Multistate Investigation of Multidrug-Resistant *Salmonella* Serotype Newport Infections in the Northeastern United States, 2000: Human Infections Associated with Dairy Farms